

suitable for the voltage and current utilized.

(c) Receptacle outlets of the type providing a grounded pole or a specific direct current polarity must be of a configuration that will not permit improper connection.

(d) All electrical equipment and circuits must be clearly marked and identified.

(e) Any cabinet, panel, box, or other enclosure containing more than one source of power must be fitted with a sign warning persons of this condition and identifying the circuits to be disconnected.

Subpart C—Power Sources and Distribution Systems

§ 120.310 Power sources.

(a)(1) Each vessel that relies on electricity to power the following loads must be arranged so that the loads can be energized from two sources of electricity:

(i) The vital systems listed in § 119.710 of this chapter;

(ii) Interior lighting except for decorative lights;

(iii) Communication systems including a public address system required under § 121.610 of this chapter; and

(iv) Navigation equipment and lights.

(2) Except as provided in § 120.312 of this part, a vessel with batteries of adequate capacity to supply the loads specified in paragraph (a)(1) of this section for three hours, and a generator or alternator driven by a propulsion engine, complies with the requirement in paragraph (a)(1) of this section.

(b) Where a ship service generator driven by a propulsion engine is used as a source of electrical power, a vessel speed change, throttle movement or change in direction of the propeller shaft rotation must not interrupt power to any of the loads specified in paragraph (a)(1) of this section.

§ 120.312 Power sources on vessels of more than 19.8 meters (65 feet) in length carrying more than 600 passengers or with overnight accommodations for more than 49 passengers.

A vessel of more than 19.8 meters (65 feet) in length carrying more than 600

passengers or with overnight accommodations for more than 49 passengers must have:

(a) Two generator sets;

(b) An electrical power system that complies with the requirements of §§ 111.10-4, 111.10-5, 111.10-9, 111.10-11 in subchapter J of this chapter;

(c) A final emergency power source, as defined by § 112.01-20 in subchapter J of this chapter, with sufficient capacity to power the loads listed in § 112.15-5 in subchapter J of this chapter for three hours; and

(d) The final emergency power source located outside the machinery space.

[CGD 85-080, 61 FR 928, Jan. 10, 1996, as amended at 62 FR 51352, Sept. 30, 1997]

§ 120.320 Generators and motors.

(a) Each generator and motor must be:

(1) In a location that is accessible, adequately ventilated, and as dry as practicable; and

(2) Mounted above the bilges to avoid damage by splash and to avoid contact with low lying vapors.

(b) Each generator and motor must be designed for an ambient temperature of 50° C (122° F) except that:

(1) If the ambient temperature in the space where a generator or motor will be located will not exceed 40° C (104° F) under normal operating conditions, the generator or motor may be designed for an ambient temperature of 40° C (104° F); and

(2) A generator or motor designed for 40° C (104° F) may be used in 50° C (122° F) ambient locations provided the generator or motor is derated to 80 percent of the full load rating, and the rating or setting of the overcurrent devices is reduced accordingly.

(c) A voltmeter and an ammeter, which can be used for measuring voltage and current of a generator that is in operation, must be provided for a generator rated at 50 volts or more. For each alternating current generator, a means for measuring frequency must also be provided.

(d) Each generator must have a nameplate attached to it containing the information required by Article 445 of the National Electrical Code (NEC) (National Fire Protection Association (NFPA) 70), and for a generator derated

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in accordance with paragraph (b)(2) of this section, the derated capacity.

(e) Each motor must have a nameplate attached to it containing the information required by Article 430 of the NEC (NFPA 70), and for a motor derated in accordance with paragraph (b)(2) of this section, the derated capacity.

(f) Each generator must be protected by an overcurrent device set at a value not exceeding 115 percent of the generator full load rating.

[CGD 85-080, 61 FR 928, Jan. 10, 1996, as amended at 62 FR 51352, Sept. 30, 1997]

§ 120.322 Multiple generators.

When a vessel is equipped with two or more generators to supply ship's service power, the following requirements must be met:

(a) Each generator must have an independent prime mover; and

(b) The generator circuit breakers must be interlocked to prevent the generators from being simultaneously connected to the switchboard, except for the circuit breakers of a generator operated in parallel with another generator when the installation meets §§111.12-11(f), and 111.30-25(d) in subchapter J of this chapter.

§ 120.324 Dual voltage generators.

(a) A dual voltage generator installed on a vessel shall be of the grounded type, where:

(1) The neutral of a dual voltage system must be solidly connected at the switchboard's neutral bus; and

(2) The neutral bus shall be connected to ground.

(b) The neutral of a dual voltage system must be accessible for checking the insulation resistance of the generator to ground before the generator is connected to the bus.

(c) Ground detection must be provided that:

(1) For an alternating current system, meets §111.05-27 in subchapter J of this chapter; and

(2) For a direct current system, meets §111.05-29 in subchapter J of this chapter.

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§ 120.330 Distribution panels and switchboards.

(a) Each distribution panel and switchboard must be in as dry a location as practicable, adequately ventilated, and protected from falling debris and dripping or splashing water.

(b) Each distribution panel or switchboard must be totally enclosed and of the dead front type.

(c) Each switchboard must have non-conductive handrails.

(d) Each switchboard must be fitted with a dripshield.

(e) Distribution panels and switchboards that are accessible from the rear must be constructed to prevent a person from accidentally contacting energized parts.

(f) Working space must be provided around all main distribution panels and switchboards of at least 610 millimeters (24 inches) in front of the switchboard, and at least 455 millimeters (18 inches) behind the switchboard. Rear access is prohibited when the working space behind the switchboard is less than 455 millimeters (18 inches).

(g) Nonconducting mats or grating must be provided on the deck in front of each switchboard and, if accessible from the rear, on the deck in the rear of the switchboard.

(h) All uninsulated current carrying parts must be mounted on noncombustible, nonabsorbent, high dielectric insulating material.

(i) Equipment mounted on a hinged door of an enclosure must be constructed or shielded so that a person will not accidentally contact energized parts of the door mounted equipment when the door is open and the circuit energized.

(j) In the design of control, interlock, or indicator circuit, the disconnect device and its connections, including each terminal block for terminating the vessel's wiring, must not have electrically unshielded or uninsulated surfaces.

(k) Switchboards and distribution panels must be sized in accordance with §111.30-19 in subchapter J of this chapter.

[CGD 85-080, 61 FR 928, Jan. 10, 1996; 61 FR 20556, May 7, 1996]